

REMARKS

The Examiner, Ms. Wright, is thanked for the courtesy extended applicants' attorney during the telephone interview of this date during which time a proposed amendment which was forwarded to the Examiner was discussed, which amendment is considered to clarify features of the present invention. Applicants note that the Examiner indicated that the Amendment would raise new issues requiring further search and/or consideration, but applicants submit that, as will become clear from the following, the amendment of claim 1 is merely of a clarifying nature reciting features which do not raise new issues requiring further search and/or consideration.

As discussed with the Examiner by telephone, and as illustrated in the drawings and described in the specification, the present invention relates to a liquid cooling module which is mounted in a notebook-type personal computer in which a main body part and a display part are connected together for opening and closing by way of plural hinges. It is desirable that the liquid cooling module which is mounted on the notebook PC be made as thin as possible, but the reduction of thickness of the notebook PC increases a burden imposed on a liquid driving arrangement, such as a pump. Accordingly, unless the pump is large-size, the liquid cannot be properly circulated, thus eventually leading to an increase in size of the liquid cooling module. The increase of the burden imposed on the liquid cooling module is attributed to the use of elongated piping, as well as the clogging of the liquid channel due to twisting of the piping or the like. Accordingly, the present inventors determined to shorten a length of piping as much as possible and to prevent the twisting of the piping for reducing the burden imposed on the pump. More particularly, when electric wiring and a flexible tube which are necessary for providing connection between the main

body and the display part are arranged to pass through the same hinge along with the opening and closing of the notebook PC, the flexible tube and the electric wiring receive a deformation force which simultaneously twist the flexible tube and the electric wiring, whereby a serious drawback occurs that the flexible tube is crushed and clogged by the electric wiring. Accordingly, the present invention enables shortening of the flexible tube by providing that the outgoing liquid channel of the flexible tube and the incoming channel of the flexible tube pass through one hinge of plural hinges, as represented by the hinge 26a, as illustrated in Fig. 6 of the drawings of this application and corresponding figures, whereas the electric wiring passes through a separate and independent hinge 26b of the plural hinges, as shown in Fig. 6. By providing that the outgoing liquid channel of the flexible tube and the incoming liquid channel of the flexible tube exclusively pass through one hinge and the electric wiring exclusively passes through another hinge which is separate and independent of the one hinge, the length of piping can be reduced and the problem involving with safety and electric problems are eliminated as described at page 10, lines 10 - 21 of the specification, for example. Applicants submit that such features are recited in claim 1, as amended and have been previously recited in claim 1 as presented in the Amendment of July 7, 2005.

More particularly, claim 1, as previously presented, recited the feature that the plural hinges included a first hinge through which two flexible tubes for transferring the liquid is passed, and a second hinge through which an electric wire from the display device is passed, wherein the first hinge and the second hinge are independently provided. By the present amendment, claim 1 has been amended to recite the feature of a liquid cooling module formed by connecting piping between the incoming radiational jacket and the radiation pipe with a portion of piping between

the radiation pipe and the flexible driving means using a flexible tube, the flexible tube of liquid cooling module for transferring the liquid enables liquid to flow between the first case and the second case in a state that one of the plural hinges has an outgoing liquid channel of the flexible tube and an incoming liquid channel of the flexible tube passing therethrough, and the one of the plural hinges being independent and different from another of the plural hinges through which electric wiring from the display device passes between the first case and the second case. Thus, applicants submit that claim 1, as amended, while clarifying features of the present invention, do not raise new issues requiring further search and/or consideration such that amendment of claim 1 should be entered and considered at this time.

Applicants note that dependent claims 2 - 8 have been amended to correct informalities and correspond to the amendment of claim 1 and such amendments also do not raise new issues requiring further search and/or consideration.

As to the rejection of claims 1 - 8 under 35 USC 103(a) as being unpatentable over Chu et al (US 6,587,336 B2) in view of Aguilera (USPN 5,606,341) and further in view of Esterberg et al (USPN 5,566,048), such rejection is traversed insofar as it is applicable to the present claims and reconsideration and withdrawal of the rejection are respectfully requested.

As to the requirements to support a rejection under 35 USC 103, reference is made to the decision of In re Fine, 5 USPQ 2d 1596 (Fed. Cir. 1988), wherein the court pointed out that the PTO has the burden under '103 to establish a prima facie case of obviousness and can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the

references. As noted by the court, whether a particular combination might be "obvious to try" is not a legitimate test of patentability and obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. As further noted by the court, one cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Furthermore, such requirements have been clarified in the decision of In re Lee, 61 USPQ 2d 1430 (Fed. Cir. 2002) wherein the court in reversing an obviousness rejection indicated that deficiencies of the cited references cannot be remedied with conclusions about what is "basic knowledge" or "common knowledge".

The court pointed out:

The Examiner's conclusory statements that "the demonstration mode is just a programmable feature which can be used in many different device[s] for providing automatic introduction by adding the proper programming software" and that "another motivation would be that the automatic demonstration mode is user friendly and it functions as a tutorial" do not adequately address the issue of motivation to combine. This factual question of motivation is immaterial to patentability, and could not be resolved on subjected belief and unknown authority. It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher."... Thus, the Board must not only assure that the requisite findings are made, based on evidence of record, but must also explain the reasoning by which the findings are deemed to support the agency's conclusion. (emphasis added)

At the outset, applicants submit that the Examiner has mischaracterized the individual references and has combined the references in the manner suggested utilizing a hindsight analysis contending that it would be obvious to provide such

structural features based upon what applicant has disclosed and taught, which applicants submit is not proper.

Turning first to Chu et al, the Examiner, in the Office Action, recognizes that "Chu et al does not teach plural hinges that include a first hinge through which two tubes for transferring the liquid is passed and a second hinge through which an electric wire from the display is passed". That is, Chu et al only discloses that a computer 10 includes a computer body 12 and a cover 14 which is connected in an openable manner in the computer body via at least one hinge 16, in the figure 1 arrangement. Chu et al describes that the hinge 16 comprises a thermally conductive hinge which transfers heat from heat pipe 20 to heat pipe 22 disposed within the cover and the two heat pipes are coupled together by conduction through the hinge. The figure 2 arrangement of Chu et al is directed to a liquid cooling system wherein one or more hinges 46 are provided so that the cover 44 pivots between an open and closed position relative to the computer body 42. Chu et al discloses liquid coolant being pumped via a miniature circulation pump 56 through flexible plastic tubing 54 into a heat exchange structure 52 disposed between cover 44 of portable computer 40 with the tubing 54 being preferably continuous between the computer body and the cover. Although Chu et al provides no disclosure or teaching of the location of the tubing 54 with respect to the hinges 46, assuming arguendo, that Figure 3A shows the flexible tubing portion 54 spaced from one another in relation to a heat exchange structure 52, and assuming arguendo, that two hinges are provided, it would appear that one flow channel of the flexible tube 54 could possibly pass through one hinge and another flow channel of the tube 54 could possibly pass through a second hinge, or if a single hinge is provided, then both flow channels would pass therethrough. Recognizing that there must be some electrical

connection between the computer body 42 and the cover 44 as illustrated in Figure 2 of Chu et al, it is apparent that such electrical connection and electrical wire necessarily passes through the same hinge through which the flexible tube 54 passes. Again, applicants note that there is no disclosure or teaching of such features in Chu et al, as recognized by the Examiner. Thus, applicants submit that the features of claim 1 as previously presented as well as the features as now set forth in claim 1, as amended, patentably distinguish over Chu et al in the sense of 35 USC 103 and should be considered allowable thereover.

The Examiner next cites Aguilera contending "Aguilera teaches (Fig. 1) a laptop computer (10) and a hinge through which two tubes for transferring the liquid is passed." (emphasis added). Applicants submit that contrary to the position by the Examiner, Aguilera provides no disclosure or teaching of the location of the tubes 110 and 120 with respect to a hinge. Aguilera, at column 3, lines 40 - 45, provides "Regardless of how many tubes are used, the ribbon of tubes 110, 120 is flexible and readily permits hinging the LCD portion of the laptop from the open position shown in Fig. 1 to a closed positioned (not shown)." (emphasis added). Irrespective of the contentions by the Examiner, there is no disclosure or teaching in Aguilera of "a hinge through which two tubes for transferring the liquid is passed", as contended by the Examiner. In this regard, the Examiner recognizes that "Aguilera does not teach an electric wire that is passed through a hinge". (emphasis added). However, hereagain, it is apparent that some electric wire passes between the different portions of the laptop and it would appear, assuming arguendo, that a flexible tube or flexible tubes pass through a hinge in Aguilera, such flexible wire would also pass through the same hinge as a flexible tube, even though, as recognized by the Examiner, there is no disclosure or teaching of this feature in Aguilera. Thus,

applicants submit that claim 1, as previously presented, and as amended by the present amendment, patentably distinguishes over Aguilera taken alone or in combination with Chu et al in the sense of 35 USC 103 and such claim and the dependent claims should be considered allowable thereover.

The Examiner further cites Esterberg et al as teaching a hinge for a portable computer through which an electric wire (140) is passed, so as to provide a channel for restricting crimping and bending forces on the wire (column 7, lines 55 - 63). While Esterberg et al does disclose a cable 140 or wiring harness or the like which may be used to provide electric signal which passes through the pivot shaft 32 of a hinge, Esterberg et al does not disclose or teach the use of a liquid cooling module, or a flexible tube for transferring liquid passing through a hinge, and/or the other features as disclosed and claimed in this application. Rather, Esterberg et al only discloses the utilization of a hollow pivot channel of a hinge through which a wiring cable 140 or the like may be passed, which due to the construction of the hinge "constrains the wire and subjects the wire primarily to tortional strain rather than crimping or bending forces so that the service life of the wire will be increased, as described in column 7, lines 59 - 63 of Esterbert et al. Applicants submit, assuming arguendo, that the provision of the channel in the hinge is suitable for the wire 140, it would be obvious that this same channel in the same hinge could be utilized to additionally pass a flexible tube through which liquid coolant passes, in addition to utilization of that channel for passage of the wire therethrough. This fact has apparently been recognized by the Examiner in the last paragraph of page 3 of the Office action. That is, there is no disclosure or teaching in any of the cited art of the recited features of claim 1 of utilizing one hinge of plural hinges for passage of channels of a flexible and to use another independent and different hinge of the

plural hinges for passage of an electric wire, with the attendant advantages, as described.

Applicants submit that the cited art of Chu et al, Aguilera and Esterberg et al fail to disclose or teach the claimed features, individually or in combination, in the sense of 35 USC 103 and the claimed features only can be reconstructed from the prior art by way of a hindsight reconstruction attempt as discussed above. Thus, applicants submit that claim 1 and the dependent claims patentably distinguish over the cited art and should be considered allowable thereover.

With respect to dependent claims 2 - 8, such claims recite further features which are not disclosed in the cited art when considered in conjunction with the parent claim. Thus, all claims patentably distinguish over the cited art and should be considered allowable, noting that it is improper to utilize what applicant has taught against the teacher. See In re Lee, supra.

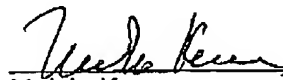
In view of the above amendments and remarks, applicants submit that all claims present in this application should now be in condition for allowance and issuance of an action of favorable nature is courteously solicited.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli,

Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 520.42791X00),
and please credit any excess fees to such deposit account.

Respectfully submitted,

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